

Notes In Anatomy

1st Year

in 37 pages



Upper Limb

All Vessels of Upper Limb.

All Nerves of Upper Limb.

Joints of Upper Limb.

Spaces of Upper limb.

important Structures.

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Brachial Plexus

- Definition: Plexus of nerves Responsible for innervation of skin and muscles of upper limb.
- Stages:

[1] Roots:

formed By Ant rami (ventral) of C5, C6, C7, C8 and T1

[2] Trunks:

- A - upper Trunk $\Rightarrow$ union of ventral rami of C5, C6
- B - Lower $\sim \Rightarrow \sim \sim \sim \sim \sim \sim \sim \sim \sim \sim$ C8, T1
- C - Middle $\sim \Rightarrow$ Contin. of $\sim \sim \sim \sim \sim$ C7

[3] Division:

Each Trunk Dividing into Ant - post Divisio.

[4] Cords:

Ant. Division of upper & Middle Trunk $\rightarrow$ Lat Cord
 $\sim \sim \sim$ Lower Trunk $\rightarrow$ Med Cord
 Post Division of All Trunks $\rightarrow$ Post Cord

[5] Branches:

(A) Lat Cord

- ① Lat Pectoral N
- ② Lat Root of Median N
- ③ Lat cut N of forearm = Musc. Cut. N

(B) Med. Cord

- ① Med pectoral N
- ② Med Root of Median N
- ③ Med Cutan. N of Arm
- ④ $\sim \sim \sim$ Fore Arm.
- ⑤ Ulnar N + 7

© Posterior Cord

- 65 { ① upper sup scapular (N)
 ② Lower ~ ~ ~
 ③ Axillary (N)
 876 { ④ Thoraco Dorsal = (N) to latiss. Dorsi;
 ⑤ Radial (N)

No 3 :

UPPER Trunk { Supra Scapular (N) 2 Muscles
 Subclavious (N) 2 joints

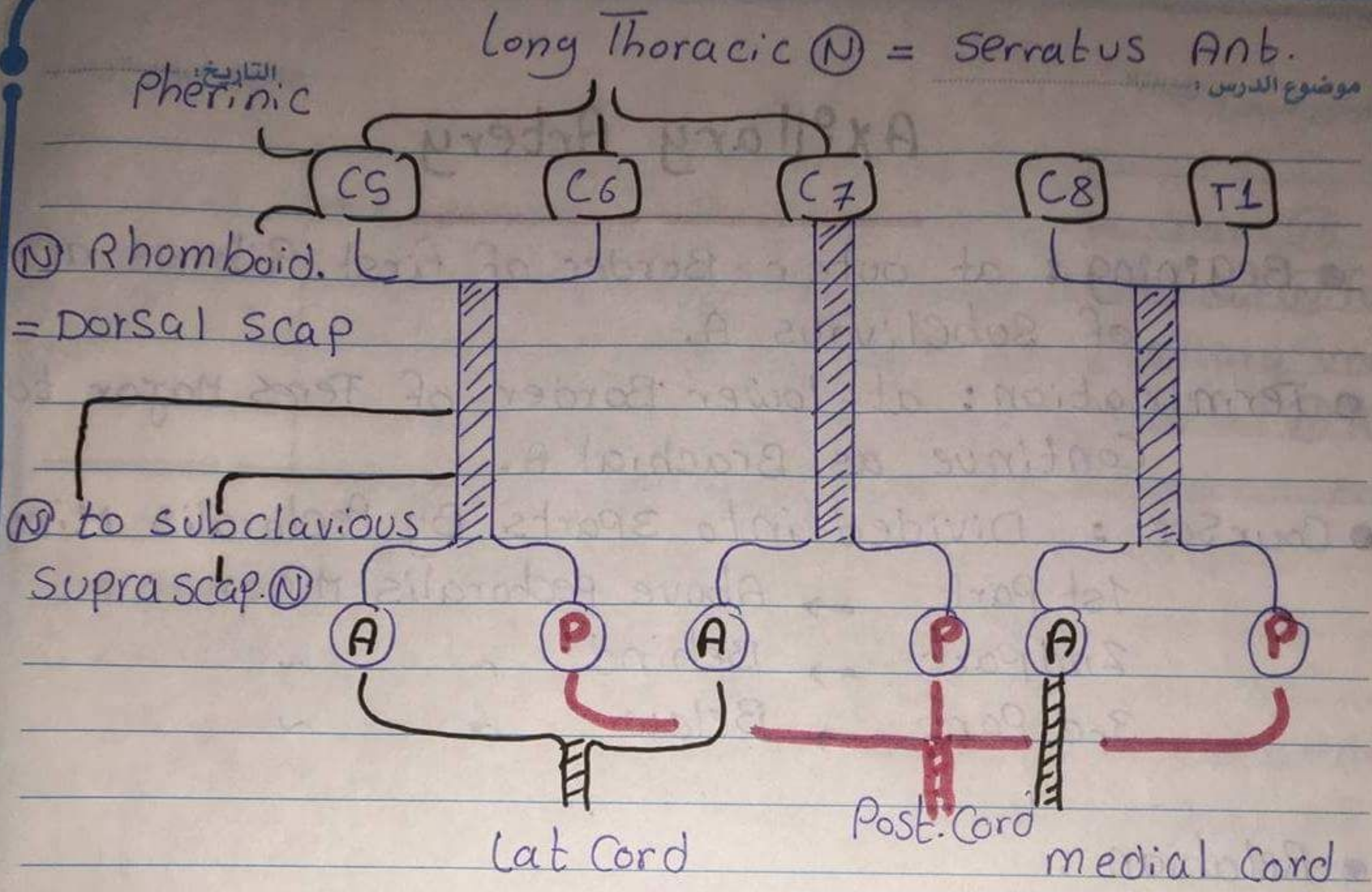
C5 { Long Thoracic (N) supply → Serrat. Ant.
 C6 {
 C7 { * upper Sup Scapular → Supscap. + Teres MJ
 * lower ~ → only Supscap.

C5 { Dorsal scap. (N) supply → 3 { Rhom. MJ
 Rhom. MN
 levator scap.
 * Axillary (N) → Ant. skin upper lat Arm
 Deltoid { → Post. Teres Minor

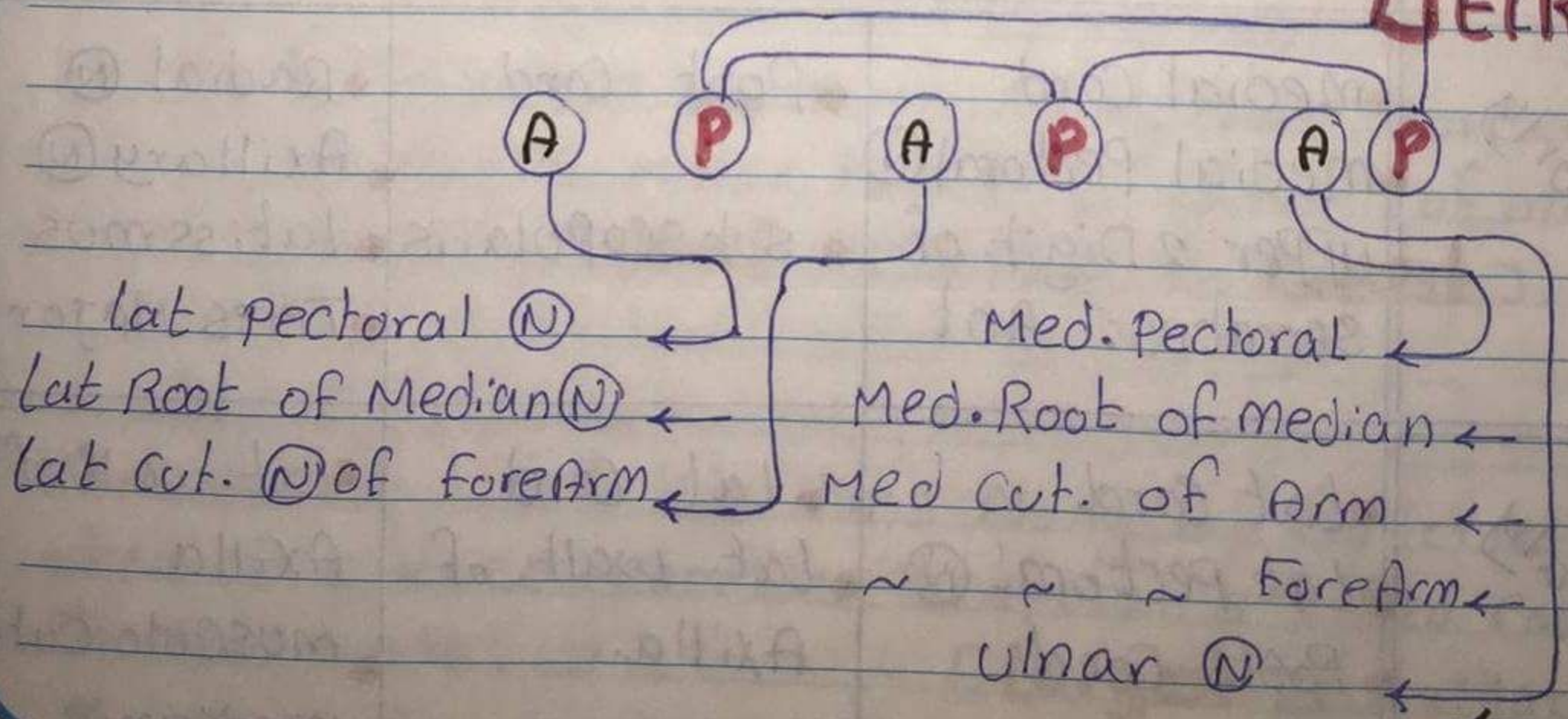
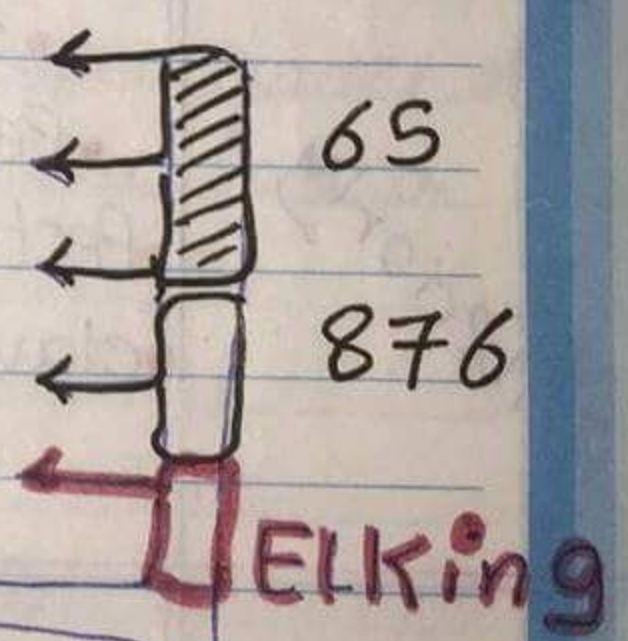
● Relations :

- 1] Roots → Bet. Scalenus Ant - Scalenus Medus.
- 2] Trunks → Root of neck.
- 3] Division → Behind Middle 1/3 of clavicle.
- 4] Cords → in Axilla.





Upper Sup Scapular (N)
Lower ~ ~ ~
Axillary (N)
Thoraco Dorsal (N)
Radial (N)



Axillary Artery

- **Beginning** : at outer Border of first Rib as a cont. of Subclivous A.
- **Termination** : at lower Border of Teres Major to Continue as Brachial A.
- **Courses** : Divided into 3 parts By Pectoralis Minor
 - 1st part → Above pectoralis minor
 - 2nd part → Behind ~ ~
 - 3rd part → Below ~ ~
- **Relation** :

	1st part	2nd part	3rd part
Anteriorly	• Skin • Pectoral fascia • Pectoralis Maj. • clavi Pectoral fasc.	• Skin • Pectoral fasci. • Pectoralis Major • Pectoralis Minor	• Skin (lower) • Pectoral fascia (upper) + Pectoralis Major + Suspensory Lig.
Posteriorly	• medial Cord • medial Pectoral (N) • upper 2 Digit. of Serratus. Ant	• Post Cord • subscapularis	• Radial (N) • Axillary (N) • Latissimus Dors • Teres Major
Laterally	• Lat Cord • Lat Pectoral (N) • Post. Cord	• Lat Cord • Lat wall of Axilla.	• lat wall of Axilla. • musculo Cut. (N) • median. (N)

medially	• Axillary vein	• Axillary vein	• ulnar (N)
		• medial cord	• med Cut (N) for Arm
		• medial pect (N)	• Axillary vein
			• med Cut (N) Arm

• Branches :

[1] 1st part :

only • sup. Thoracic A → runs Along Superior Border of Pectoralis Minor to supply superior part of Thoracic wall

[2] 2nd part :

A • Thoraco acromial a → Around upper Border of Pectoralis Minor Piercing Clavipectoral Fascia Then Divided into 4 Branches

- Acromial Br
- Deltoid Br
- clavic. Br
- Pectoral Br

B • lat Thoracic a → Runs Along lower Border of Pectoralis Minor to supply lat part of mammary gland [Chief A. supply to Breast]

[3] 3rd part :

A • supscapular A → Runs Along lat Border of Scapula where it gives (circumflex scapular a) Then Continue as Thoraco Dorsal a : [Largest Br Axillary A]

• Circumflex scapular → Pass Through upper A space to share in Anastomosis Around scapula.

• Thoraco Dorsal: Contin. Downward & (N) → lat. Dors.

B. Ant. Circumflex Humeral A:

passes in front of surgical neck Deep to Deltoid to share in cruciate Anastmosis - gives Ascending Br Runs in floor of Bicipital groove to Supply Shoulder joint.

C. post. Circumflex Humeral A:

passes Through quadrangular space ϵ axill. (N) Then Behind surgical neck of Hum. Deep to Deltoid to share in Cruciate Anastmosis. And gives Descending Branch

Anastmosis Around scapula

• Definition: it is Anastmosis Bet. Branches of 1st part of subclavious A and 3rd part of Axill. A.

• Formed By:

① Supra Scapular $\bar{a}$ $\rightarrow$ Br from Thyro Cervical Trunk of 1st part of subclavious A
(it's Accop. ϵ Supra Scapular N)

② Deep Br of Transverse Cervical A $\rightarrow$ Br from Thyro Cervical $\bar{a}$
(Runs Along medial Border of Scapula)
(Accompanied ϵ (N) to Rhomboidus)

③ Circumflex Scapular $\bar{a}$: Br from Supscapular $\bar{a}$
w Br from 3rd part of Axillary A

④ Br. of Post. interCostal Arteries → Br from Descending Thoracic Aorta.

● importance:

Anastmosis Around scapula provides An Alternative Source of Blood for upper limb if Axillary A obst. By Thrombus or Compressed By Tumor.

SHOULDER JOINT

● Definition: it's site of Articulation Bet Head of Humerus & glenoid cavity of scapula.

● types: (morphologically) Ball-Socket synovial
(Functionally) Poly Axial.

● Articulating Surfaces:

The Humeral Convex Head is 4 times larger Than The shallow Concave glenoid fossa Both Connected by lax Capsule → That Allow ~~free~~ great free movement on the Expense of stability.

● The fibrous capsule:

① Attachment: medially to The glenoid margin outside glenoid labrum & outside glenoid tubercle.
laterally to Anatomical neck But inferomedially it Descend on surgical neck (1-2 cm)



[2] opening :

- Anterior opening $\bar{w}$ Comonicate joint Cavity $\bar{e}$ Sub scapular Bursa.
- Posterior opening $\bar{w}$ ~ ~ ~ ~ ~
- infraspinous pursa.
- Third opening at The upper end of Bicipital groove for long Head of Biceps.

• Supporting ligament :

- ① glenio Humeral : (Sup. - Middle - inferior) They Extend from Ant. margin of glenoid cavity to The lesser tuberosity of The Humerus $\Rightarrow$ Support front
- ② Coraco Humeral : from Coracoid root to front of greater tuberosity $\Rightarrow$ Support Superior Capsule
- ③ Transverse Humeral lig. : Extend Bet. greater & lesser tuberosities Beneath it long Head leave joint.

• Intra capsular structure :

- ① labrum glenoidale : fibroCartilagenous ^{Ring} attached to margin of glenoid cavity. (Depth glenoid cavity)
- ② long Head of Biceps : invested By tubular sheeth Derived from synovial membrane Cintra Caps. Ext. Syn)
- ③ synovial membrane : Lines The Capsule & covers The intra capsular Part of Surgical neck of Humerus.

● stability of shoulder joint:

- ① Coraco Acromial Arch (Acromion - Coracoid - Coracoacromial Ligament) prevent upward Displacement of The Humeral Head.
- ② Rotator Cuff muscles (muscle attached to greater and lesser tuberosities) subscapularis - supraspin. - infraspinatus. teres Minor most important supporting factor of shoulder joint.
- ③ Long Head of Biceps support Humeral Head from Above.
- ④ Long Head of triceps support Adected Humerus from Below
- ⑤ Accessory Ligaments. ⑥ Cartilage:
 - (A) Hyaline attache to Articular Surface in Head of Humerus Thick in central and thin preiphiral and in glenoid cavity Thick preiphiral and Thin Central to Deeping of glenoid cavity).
 - (B) labrum glenoidae ++ Depth

● Relation :

- | | |
|--|--|
| <p>Posteriorly</p> <ol style="list-style-type: none"> 1 infra spinatus. 2 Teres Minor. | <p>Anteriorly</p> <ol style="list-style-type: none"> 1 subscapularis msc 2 Axillary vessels 3 Brachial plexus |
| <p>inferiorly</p> <ol style="list-style-type: none"> 1 Long head of triceps 2 Axillary N 3 Post Circumflex Hum. vess. | <p>superiorly</p> <ol style="list-style-type: none"> 1 supraspinatus. 2 sup acromial Borse 3 Coraco acrom. Lig. 4 Deltoid msc. |

• Movement of The joint:

① Flexion

Done By muscles Ant to Joint

Pectoralis Major
Coraco Brachialis
Ant fibres of Deltoid

② Extension

~ Post to joint

Latissimus Dorsi
Teres Major
Posterior fibres of Delt.

③ Medial Rotation

By msc inserted in Biceps G.

Pectoralis Major
Latissimus Dorsi
Teres Major

④ Lat Rotation

~ attach. to post great T.

infraspinatus
Teres Minor

⑤ Adduction

By 2 climbing msc

pectoralis Major
Latissimus Dorsi

⑥ Abduction

By msc sup. to joint

pectoralis Major
Latissimus Dorsi

Range	Joints	Muscle
0°-18°	Shoulder J.	supra spinatus
18°-90°	Shoulder J.	Deltoid (middle)
90°-180°	Shoulder girdle	Trapezius lower 5 Digit of serratus

• Nerve supply: Supra Scapular (N) - Axillary (N)

• Blood ~ : Ant + Post Circum F Humeral (A)
+ Supra Scapular (A)

Brachial Artery

- **Beginning**: at lower Border of Teres Major as a cont of Axillary A.
- **Termination**: in The Cubital fossa at level of neck of Radius. It gives two terminal Br: Radial A and ulnar A.
- **Course**:
 - ① upper $\frac{1}{2}$ medial to Humerus.
 - ② lower ~ In front of ~
 - ③ Termination at cubital fossa.

● Relations:

① Muscles

Anterior	Posterior	Lateral	
Biceps	long. H. tricep.	Tendon of Biceps	
Aponeurosis ~	Med. H. ~		
	insert. Coraco Br.		
	Brachialis		

② Nerves

upper $\frac{1}{2}$	lat	(Median - Musculo Cutan.)
	Med	(Ulnar)
	Post	(Radial)
lower $\frac{1}{2}$	Med	(Radial)
	lat	(Median)



Arteries & vessels

- 1 Along its course its accompanied by 2 vena com.
- 2 its upper have medially to Basilic vein.

● Branches: **SIPTM** و **فني**

[1] Profunda Brachial A:

[**Largest** Br] Arise from postero lat. Aspect of Brachial A. Passes Through lower Δ space to Enter spiral groove on the Back of shaft of Humerus [Accomp. by **Radial N**]

Branches: 1 Nutrient A for Humerus.

2 Ascending Br → cruciate Anastmosis

3 Ant. Descending Br (Radio collateral A):
Pierces lat intermuscular septum at level of

[insertion of coraco Brachialis] (by **Radial N**) to Anastomose by Radio recurrent Br (Radial A).

4 Post. Descending Br → Anastmosis by Interosseus recurrent Br from (post inteross.) on Back of lat. epicondyle.

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[2] Superior ulnar Collateral A:

Pierce med. intermuscular septum at level of [insertion of coraco Brachialis] (by **ulnar N**) to Anastomose by Post ulnar Reccur. CBr from ulnar A

on the Back of medial epicondyle.

[3] inferior ulnar Collateral A:

Arise **5cm** above Elbow And Dividing into:

Ant Br: Anastmoses by Ant ulnar recc. Br from uln.

Post Br: Pierce med inter masc. septum to Anastm. by post ulnar Reccurent on Back of Med. epicondyle

[4] Nutrient A to Humerus.

[5] Muscular Branches.

[6] to terminal Branches ↗ Radial A
↘ ulnar A

Axillary vein

• Beg.: At lower Border of Teres Major as a continuation of Basilic vein.

• Term.: At outer Border of 1st Rib. to continue as Subclavian vein.

• Course: Lies medial to Axillary A Along its Course.

• Tributaries:

- 1 Superior Thoracic vein.
- 2 Thoraco Acromial vein.
- 3 lat Thoracic vein.
- 4 Ant Circumflex Humeral vein.
- 5 post Circumflex ~ ~
- 6 subscapular A.

Anastomosis Around Elbow

[1] in front of medial epicondyle Anastomosis Bet:

- 1 Ant. Br. of inf. ulnar collateral A. Br from Brachial. A
- 2 Ant ulnar recurrent A Br from ulnar A.

[2] on The Back of medial epicondyle Anast. Bet:

- 1 post Br of inf. ulnar collateral A. Br from Brachial A
- 2 superior ulnar collateral A Br from ~ ~
- 3 post ulnar recurrent A Br from ulnar A.

- [3] in front of lateral Epicondyle Anastm. Bet.:
- 1 Ant. Descending Br → From Profunda Brachial A
 - 2 Radial Reccurent A Br from Radial A.

- [4] on The Back of lateral Epicond. Anast. Bet.:
- 1 Desc. Middle coll. A Br. from Profunda Brachial A.
 - 2 interosseus Reccurent Br from Post Common interosseus Br from Common interosseus Br from ulnar A.

Radial Nerve

- one of 5 Branches of Posterior Cord of Brachial plexus
- Root value: C5, C6, C7, C8, T1 Elking

- Course: in 5 Regions :-

[1] Axilla: Behind 3rd part of ^{Axillary} Brachial A.

[2] upper part of Arm: Behind Brachial A.

[3] Spiral groove: Enter it By passing Through lower Δ space (accomp. ē Profunda Brachial A)

[4] in groove Bet Brachialis & Brachio Radialis ^{Ref.} After Piercing lat inter-muscular Septum at level of insertion of Coraco Brachialis muscle (accomp ē Radial Coll. A)

- [5] in front of lat Epicondyle in The Cubital fossa where it End By giving 2 terminal branches:

1 superficial radial.

2 post interosseus.

- Branches:
 - [1] Axilla
 - ① to long Head of triceps
 - ② ~ medial ~
 - post. cutan. ③ of The Arm.

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[2] in The Spiral groove :

- N to Medial H triceps
- N ~ lateral ~ ~
- Post Cutaneous ForeArm
- lower lat cutan. n Arm
- N to Anconeus.

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وبعد "زينة"
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[3] in groove Bet. Brach. & Brachio Radialis :

- N to Brachialis (small lat. Part)
- N ~ Brachioradialis.
- N ~ Extensor Carpi radialis longus.

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وفاقة
كامل

[4] in front of lat. Epicondyle giving 2 terminal Branches :
1 superficial Radial A
2 Posterior interossei.

5 MUSCLES

T A B E B

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3 Cutaneus

* N to medial Head of Triceps in The spiral groove is aslender n Traverses Med. Head of triceps then Supply Anconeus.



Axillary N

- one of 2 terminal branches of post cord of Brach Plexus.
- root value: C5 C6 Post Cord
- Course: 2 Region
 - 1 Axilla: runs post to 3rd part of Axilla
 - 2 Around Surgical neck of Humerus After Pass Through Quadrangular space deep to deltoid and Accompanying Post Circumflex. Humeral A.

- Branches: Gives Articular to Hip-shoulder joint Then Dividing into:

Ant Division

1 Ant. part of deltoid.

2 ^{skin} upper part of Ant of deltoid.

(After Piercing Deep Fascia)

Post Division

1 Teres Minor.

2 Post part of deltoid

3 Upper lat Cut. of Arm (After Piercing Deep.f. to supply skin of lat.p. Del.)

- Effect of its Injury:

1 Cause

fracture of surgical neck

Dislocation of shoulder

2 Effect

Sensory → parts of skin

Motor → loss of Abduct. ↑ 15°

3 Deformity

→ Flat shoulder.



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هيدي ميد الى لبريك اليز
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مع انه
موضوع الادرس
انه هيدي A

Musculo Cutaneus N

- its one of 3 Branches of lateral Cord of Brach. plexus.
- root value : C5 , C6 , C7

- Course : in 2 Regions

① Axilla : it Runs Down ward lat. to 3rd Part of Axillary A to Enter The Arm By Piercing Coraco Brachialis muscle.

② in The Arm: it Runs Downward Bet Biceps and Brachialis ... 5cm above Elbow it Piercing Deep fascia and continue as Lat Cut. n of ForeArm.

- Branches :

1 Muscular :

BBC

2 Cutaneus :

1 Biceps.

2 Brachialis (medial part).

3 Coraco Brachialis.

Lat. Cut. N OF ForeArm

3 Articular : ELBOW joint.

• N.B :

Cut. of ForeArm.

Lat → musc. cut.

Post → Radial.

Cutan. of. Arm

Post → Radial

Lower Lat → Radial

Axilla

• its pyramidal space Between upper part of Arm And Thoracic wall Have :

- | | |
|-------------|--------------|
| ① Apex | ② Base |
| ③ Med. wall | ④ lat. wall |
| ⑤ Ant. wall | ⑥ post. wall |

① Apex :

Direct upwards & medially formed By Canal

(Cervico axillary Canal) Bounded By 3 Bone:

- 1 middle $\frac{1}{3}$ of Clavicle (Anteriorly).
- 2 upper Border of scapula (Posteriorly.)
- 3 outer Border of first rib. (Medially)

② Base:

Directed Downward & laterally formed floor By 3 layers:

- 1 Skin.
- 2 Superficial fascia.
- 3 Deep fascia (Axillary fascia).

③ medial wall:

formed By 3 structures:

- 1 upper 4 or 5 ribs.
- 2 inter costal spaces Bet. ribs.
- 3 upper 5 Digitation of serratus anterior.

④ lateral wall :

Formed By 3 structures :

- 1 Bicipital Groove.
- 2 Short head of Biceps Brachii msc.
- 3 Coraco Brachialis msc.

⑤ Anterior wall :

Formed By 3 Layers

1st layer → skin, superficial fascia, Deep fascia.

2nd layer → Pectoralis Major msc.

3rd layer → Axillary Fascial septum

- subclavious.
- clavipectoral Fasc.
- Pectoralis Minor
- suspens. Lig. Axilla.

⑥ Post. wall :

Formed By 3 muscle :

From medial to lateral

- 1 subscapularis.
- 2 Teres Major.
- 3 latissimus Dorsi.

● N.B. :
 → Ant. Axillary Fold : lower Border of Ant. wall of Axilla Formed By lower Border of Pectoralis Mj.
 → Post. Axillary Fold : lower Border of Post. wall Formed By Teres Mj & latissimus Dorsi (Tripple rel.)

● N.B. :
 → upper limit of Axilla :
 Cervico Axillary Canal
 → lower limit of Axilla :
 lower Border of Teres Major.

● Contents of Axilla:

- 1 Axillary A. and its Branches.
- 2 ~ ~ ~ ~ ~ Tributaries.
- 3 Cords - Branches of Brachial plexus.
- 4 long Thoracic N (to serratus Ant.).
- 5 inter Costal nerves.
- 6 Axillary Lymphnodes.
- 7 ~ ~ ~ ~ ~ sheath.
- 8 ~ ~ ~ ~ ~ Tail of Breast.
- 9 **Fat** areolar tissue Bind all above structures.

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Female Breast

- **Site:** All The mammary gland lies in **superficial fascia of pectoral Region** Except its sup. lateral part pierce Deep fascia at lower Border of **pectoralis Major** to lie on medial wall of Axilla.
- **Description:** Conical = Hemispherical in shape:
 - Base 1 Extend from 2, 6 ribs at mid clav. line.
 - 2 ~ From lat Bord. of sternum to mid axill. line at level of 4th rib.
 - 3 Relation: retro mammary space separate Base from Deep fascia covering: Pectoralis Mj - Serratus Ant. - Ext. oblique
- Has → **Apex:** Represent as nipple $\bar{w}$:
Conical projection at 4th rib. Traversed By 15-20 lactiferous duct and surrounded By Circumscribed Ligh Brown Coloured skin Called Areola.
- **structure:**
 - ① glandular tissue: -
15-20 lobes Each lobe consist of lactiferous duct Recieve **cluster** from Alveoli, Befor open Through nipple it forms dilatation (lactiferous Sinus).
 - ② **Stroma:** -
Ⓐ fatty Stroma → present all over The gland EXCEPT Beneath nipple - **Areola**.

③ fibrous stroma: suspensory Ligament of Cooper

1 Separate Bet lobes.

2 connect Covering skin + Deep fascia (pectoral).

• Arterial supply :-

1 2nd, 3rd, 4th perforating Branches of internal mamm. A.

2 lat Thoracic A = External mammary.

3 sup Thoracic A.

4 Pectoral Br of Thoracoacromial A.

• venous drainage :-

Accompany The Corresponding Arteries.

• Nerve supply :-

Ant. - lat Cutaneous Nerves Br of 2-6 intercostal N.

• lymphatic drainage:

Carried By The following lymph plexus

subclavious
Subcutaneous
Sub areolar
intra lobular
retro mammary

And go to The following L.N. By The following pattern:

1 upper Quadrant

→ Apical group of L.N.

2 lower

~

→ rectus sheeth - sub pherinic L.N.

3 Medial

~

→ internal Thoracic L.N.

4 lateral

~

→ Pectoral group of Axillary L.N. 75%

+ Central Part

N.B Some lymphatics of medial part Across in front of sternum to Anastmose e opposite Breast.

Superficial Vein UL.

① Dorsal Venous Arch:

- Present on dorsum of foot Hand - Formed By Dorsal Digital veins.
- medial End → continue as Basilic vein
- lateral End → ~ ~ Cephalic ~

② Cephalic vein:

- Beginning: Continuation of lat End of Dorsal v. Arch.
- Termination: By Piercing pectorpect. Fasc. to cont. as End in Axillary vein.

• Course relation:

- 1 Cross roof of Anatomical snuff Box.
- 2 ~ Superficially to Extensor retinaculum.
- 3 runs in lat aspect of fore Arm.
- 4 Cross roof of Cubital fossa.
- 5 runs lat. to Biceps Brachii msc.
- 6 runs in clavi delto Pectoral groove.

③ Basilic vein:

- Beginning: Continuation of medial End of D.V.A.
- Termination: at lower Border of Teres m. to Cont. as Axillary vein.

• Course relation:

- 1 runs superficially to Extensor retinaculum.
- 2 runs on medial Aspect of fore Arm.
- 3 crosses roof of Cubital fossa.
- 4 Pierce deep fascia at level of Coraco Brachialis insertion.

④ median cubital vein:

- Beginning : from cephalic vein 1" Below elbow.
- End : on Basilic
- receive : median vein of fore Arm.
- * vein of choice in intramuscular injection because

⑤ median vein of fore Arm:

- Beginning : from union of palmar plexus of vein.
- End : median cubital vein.

Anatomical Snuff Box Hollow Δ Part at Dorsum of lat.

• Boundaries :

laterally $\rightarrow$ tendon of
{

 Abductor pollicis longus
 Extensor ~ Previ's

medially $\rightarrow$ tendon of Extensor Pollicis longus.

Floor $\rightarrow$
{

 Styloid process of Radius
 Scaphoid
 Trapezium

Roof $\rightarrow$
{

 skin
 superficial fascia

Contain Ceph.v.

• Contents : Radial A



● Defination:

Δ inter muscular space in front elbow joint

- Description:

Δ in shape has :

- 1 Apex → formed By overlapping of Brach. Radialis on Pronator teres.
- 2 Base → upward Formed By imagine line Bet. med and lat maleolus.
- 3 med. Bound → By lat Border of Pronator teres.
- 4 lat. ~ → ~ med ~ Brachioradialis.

5 Floor → Formed By 2 muscles

- Brachialis → medially
- Supinator → laterally

6 Roof → formed of

- Skin
- Superf. fascia
 - Cephalic v
 - Basilic v
 - med. cub. v.
- Deep fascia
- Biceptal aponeurosis

● Contents :

from medial to lateral.

- 1 median nerve.
- 2 Brachial A & its two terminal Branches Radial
ulnar
- 3 Biceps tendon.
- 4 radial n and its two terminal Branches.



Flexor Retinaculum

● Definition: Thickened Band of Deep fascia on The Ant. surface of Carpal Bones.

● Attachment:

- laterally → tubercle of scaphoid.
- Crest of Trapezium.
- medially → pisiform.
- Hook of hamate.

● Structure passing superficially to it:

med. 1 ulnar n.

2 ulnar A.

3 Pulmar Cut Br. of ulnar n

4 Pulmaris longus

lat. 5 pulmar cut Br of median n

● Structure passing Deep to it: (= Through Carpal tunnel.)
 ■ long flexor tendons passes from front of forearm to palm of Hand:

1 tendon flexor digitorum profundus.

2 ~ ~ ~ ~ ~ Superficialis.

3 tendon Flexor pollicis longus.

4 tendon ~ ~ ~ ~ ~ Carpi radialis

Special Compartment Deep to lat end of the retinaculum.

■ median nerve lat to flex digitorum superficial.

- function: Hold long flexor tendons in position & preventing their bowing out during flexion of wrist joint or fingers.

Carpal Tunnel

- Definition: osseo fibrous channel bet. flexor retin. & carpal bones transmitting long flexor tendon and median @ from forearm to pulmar of hand.
- Structure pass through it:
 - 1 Flexor Digitorum profundus.
 - 2 Flexor ~ superf.
 - 3 ~ pollicis longus.
 - 4 median nerve

● Clinical: Carpal T. Syndrome

- Definition: Compression of median @ as it passes through carpal tunnel.
- Cause:
 - 1 fracture of carpal bones.
 - 2 Arthritis
 - 3 tenosynovitis
- Effect:
 - sensory: loss of sensation of lat $3\frac{1}{2}$ fingers.
 - motor:
 - Thenar muscles → Flat Thenar msc.
 - lat 2 lumbricals.
- Deformity: APE Hand
Extended - adducted Thumb.



Inter muscular spaces

① Quadrangular space:

- Boundaries
 - Above → subscapularis (front), Teres MN (B)
 - medial → long Head of triceps.
 - lateral → surgical neck of Humerus
 - Below → Teres Major
- Contents
 - 1 Femoro Axillary nerve
 - 2 Post Circumflex Humeral vessels
 - 3 Fold of Capsule of shoulder joint.

② upper triangular space

- Boundaries
 - Above → Teres Minor
 - lateral → long head of triceps.
 - Below → Teres Major

- contents: Circumflex scapular A.

③ lower Δ space:

- Boundaries
 - Above → Teres Major
 - ~~B~~ med. → long head of triceps
 - lateral → shaft of Humerus.

- contents
 - Radial n
 - profunda Brachii vessels.

Clavipectoral fascia

● Definition: Sheet of Deep fascia stretched bet. clavicle and upper border of pectoralis minor.

● Attachement: enclose subclavious

- 1 Anteriorly Superiorly → lips of groove for subclavious
- 2 Posteriorly inferiorly → upper border of pect. minor
- 3 medially → 1st rib + 1st costal cartilage.
- 4 Laterally → coracoid process.

● Extensions:

Suspensory ligament of Axilla:
extend from lower border of pect. minor to Axill.
Fascia.

● structure piercing it:

- 1 lat pectoral n
- 2 Thoraco Acromial A
- 3 lymphatic vessels bet infraclavicular and
- 4 Cephalic vein | Axillary L.N.

● Function:

- 1 forms part of Ant wall of Axilla.
- 2 protection of content of Axilla.

Thenar Muscles

• Name of The muscles:

- 1 Abductor Pollicis brevis.
- 2 Flexor Pollicis brevis.
- 3 opponens pollicis longus.

• Common origin :

- lat. part of flexor Retinaculum.
- Base & tubercle of scaphoid - crest of trapez.

• insertion:

- 1, 2 inserted in **Base** of proximal phalanx of Thumb
- But** Abductor on lat. side, flexor in the medial side.
- 3 inserted in **lat** part of **Ant surface** of 1st metacarp

• N. supply :

- median n (recurrent Br)
- flexor may be supplied by deep branch of ulnar nerve

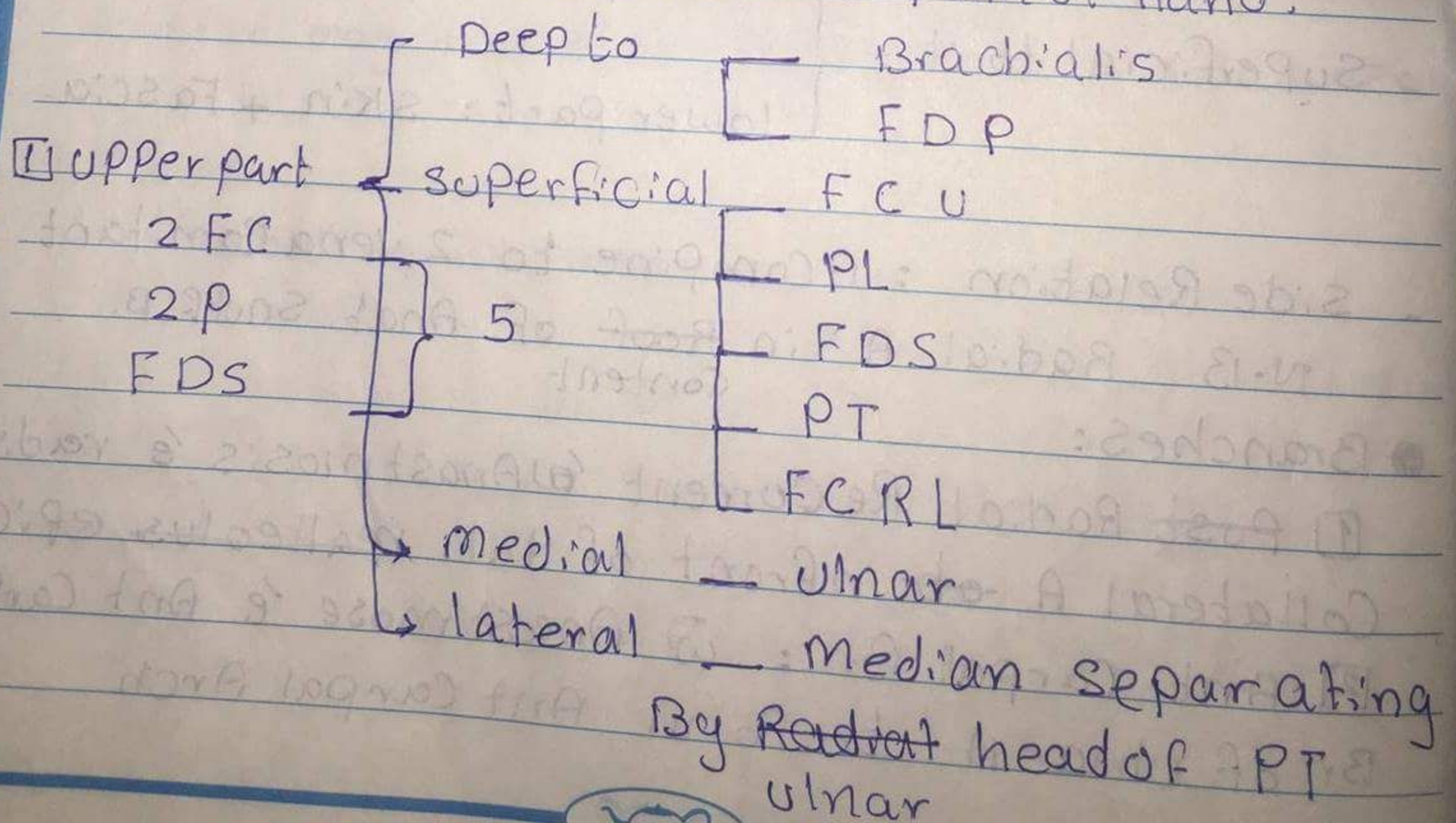
• Action:

According to its name.

- [3] Post-Carpal Br: $\bar{w}$ Anastomose $\bar{e}$ post carpal Br of Post Carpal Br of ulnar A.
- [4] Superficial Pulmar A: $\bar{w}$ Anastomose $\bar{e}$ Superficial terminal Br of ulnar A.
- [5] Muscular

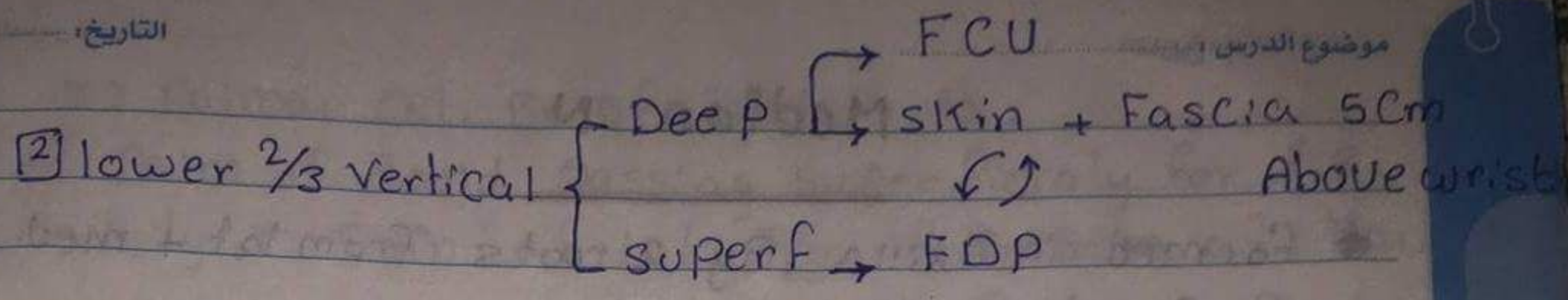
ulnar A

- Beginning: one of 2 terminal Br of Brachial A at level of neck of Radius at cubital fossa.
- Termination: in palm of Hand By gives 2 terminal Branches superficial Br - Deep Branch.
- Course - Relation:
 - upper part is oblique - lower part vertical
 - Runs in front of ulnar And passes superficially to Flexor retinaculum. to enter palm of Hand.



التاريخ:

موضوع الدرس:



medial → ulnar n

sides → Accompany 2 vena Comit.

Branches:

- 1 Ant. ulnar recurrent → ...
- 2 Post. ~ ~ ~ → ...
- 3 Ant Carpal Branch → ...
- 4 Post ~ ~ ~ → ...
- 5 Deep terminal Branch → ...
- 6 Super. ~ ~ ~ → ...
- 7 Muscular.

8 Common interossius:

Arise from upper part of ulnar A and Dividing:

Ⓐ Ant. interossius: Descend in front of interossius membrane And Give

- Median A
- Nutrient A

Ⓑ Post. interossius: Passed on upper Border of interossius membrane to reach Back of Fore Arm. And Gives → post interossius to Anastomose Median rec. collateral A (Post Descending A).

Deep palmar Arch

- Deep terminal Br of ulnar A
- ~~Deep Br~~ Radial A (Terminal)
- Ant interossius

Super. palmar Arch

- Sup. palmar Br of Radial
- Terminal ~ ~ ulnar

Median N

- Formed in Axilla By 2 roots from lat + med. Cord. of Brachial plexus.
- root value: C5 C6 C7 C8 T1
- Course:
 - 1] Enter fore Arm By passing Bet 2 head of pronator teres.
 - 2] Runs in fore Arm Bet 2 Digitorum: FDS, FDP
 - 3] Above wrist joint it APPEARS Bet 2 tendon: PL, FCR
 - 4] leave Fore Arm and enter Hand By passing Deep to Flexor retinaculum
 - 5] Terminate in palm of Hand By Giving 2 terminal Branches
 - medial terminal Br.
 - lateral ~ ~

- Branches:

1] fore Arm:	Pronator teres
(A) Muscular Branches	FCR, PL
بداية ونهاية والسوبرفشيال	FDS.

- (B) Ant. interosius N:

Runs in front of interosius membrane Accompanying Ant. interosius And Dis Apper deep to Pronator quadrat. and supply:

1/2 lat part of FDP
Pronus quadratus
FPL

يقطع نصف Lat
و إلى يمينها
واللوزة



(c) Palmar Cut. Br of median N :
 enter Palm of Hand passing superficially for F.R.
 And supply : Skin of lat $\frac{2}{3}$ of Dorsum of Hand.
 Palm

[2] Hand :

Motors :-

5 muscles

3 Thenar.

2 lat. Lambricals

Sensory :-

palmar part of lat $3\frac{1}{2}$

Fingers.

● Effect of its Injury :

[1] At cubital fossa :

Cause : wound.

Effect : loss of sensation

paralysis of muscles ---

Deformity : Ape Hand

[2] At Carpal tunnel :

Carpel tunnel Syndrome.

(36)

- Course :
 - 1] Enter Fore Arm Bet. 2 head of FCU
 - 2] Run sin ~ Bet FCU, FDP, palm.
 - 3] Leave fore Arm and enter dorsum of hand By passing superficially to Flexor Retin.
 - 4] Termination in The Hand By Giving
- Terminal Branches : Deep, superficial.

- (A) 2 Muscles $\left[\begin{array}{l} \frac{1}{2} \text{ medial part of FDP.} \\ \text{FCU} \end{array} \right.$

(B) palmar Cutaneous Br of ulnar N:
Passes ~~bet~~ superficial to F.R. to enter palm of hand
And supply Med $\frac{1}{3}$ of Palm of Hand (Skin).

(c) Dorsal Cutaneous Br of ulnar N:
Passes superficial to E.R. to enter Dorsum of Hand
And supply med $\frac{1}{3}$ of dorsum of Hand (skin).

2 in Hand:

15
Motor

4 interos. Palmar
Dorsum
2 med lambricals
3 hypo Thenar.
Palmaris Prev.
Adductor Pollic.

• sensory medial $1\frac{1}{2}$ finger

اول اصول
البريق والبوليس

Extensor Retinaculum

● Definition: Thickened Band of Deep fascia on Back of wrist joint.

● Attachment:
 Medially → Pisiform Ulna.
 Laterally → Styloid process of Radius
 → Ant crest of styloid. p. of Rad.

● Structure passes superficially to it:

From lat to medial:

- 1 Digital Br of superficial Radial @.
- 2 Beginning of cephalic vein.
- 3 ~ ~ Basile ~
- 4 Dorsal Cutaneous Br of ulnar @.

● Structure Deep to it:

5 septa Extend from retinacula to radius & ulna
 Divide space Below it into 6 compartments arranged
 from lat to medial:

- | | | |
|-----------------|---|---|
| 1st compartment | → | Abduct. p. L + Ext. p. B |
| 2nd ~ | → | Ext. Carpi Radialis. L + B |
| 3rd ~ | → | Ext. Pollicis Longus. |
| 4th ~ | → | Ext Indices + Ext D. B
Post Interos. n + Ant. Interos. A. |
| 5th ~ | → | Extensor Digiti minimi |
| 6 ~ | → | Extensor Carpi ulnaris |

طريقة حمة لفظ Extens. Retin

- | | | |
|--------------|---|-------------------------------|
| 1st Compant. | → | lat Bound. of Anat. S |
| 2nd Compant. | → | تسمى اثنى الاصل اثنى وعنه على |
| 3rd | → | med Bound. of Anat. S. |
| 4th | → | حيث لفتى طلع عاوى ابن الابه |
| 5th | → | منه ثبت زى للوز |
| 6th | → | آخر لفته هزم يكس من النار |